

REMARKS

Claims 1-6 and 8-17 are all the claims pending in the application. Claim 1 has been amended to recite that the smoking material is generated from a smoke generating device based on, for example, pages 4-5 of the present specification.

Entry of the above amendment is respectfully requested.

Initially, the Examiner is respectfully requested to indicate that the drawings submitted on April 9, 2004 have been accepted.

I. Response to Rejection of Claims 1 and 2 under 35 U.S.C. § 103(a)

Claims 1 and 2 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Smits (4,359,481) and Fessmann (UK 1,137,637).

The rejection is respectfully traversed.

Claim 1 is directed to a fish processing method comprising generating a smoking material from a smoke generating device, into which no air is introduced from a cast portion for feeding the smoke material and smoke discharge path, removing at least one unnecessary substance selected from the group consisting of soot and tar from the smoking material under a condition where air is interrupted or air is not introduced, bringing, at a normal pressure or a pressurized condition, the smoking material into contact or into mixing contact by a mixer with at least one of water, a solution or a solution comprising at least one additive selected from the group consisting of an antioxidant, a pH adjuster and a condiment to dissolve a smoke dry component to form a smoking liquid, and applying the smoking liquid to a fish to produce a smoke dried product.

According to the present invention, a smoke material generated from a smoke generating apparatus, in which no air is introduced from the cast portion from which the smoke

material is fed and the smoke discharge path, is used. As a result, it is possible to obtain a smoking material containing a very small amount of oxide, having a weak-scent and a refreshing smell, and stabilizing a coloration of coloring matter of the product, i.e., color does not change for long period of time. In addition, unnecessary substances, such as soot or tar, is removed from the smoking material under a condition where an air is interrupted or an air is not introduced, so that a high qualitative smoking material containing a small amount of oxidants and from which impurities being removed is available.

Then, the smoking material from which an unnecessary substance is removed is brought into contact at a normal pressure or a pressurized condition or into mixing contact by a mixer with one of a water, a solution and a solution into which at least one necessary additive consisting of an antioxidant, a pH adjuster and a condiment is dissolved. Thus, it is possible to obtain the smoking liquid in which smoking components is dissolved (liquidized). That is, a gaseous smoking component does not remain in the liquid. Namely, in the present invention, the smoking liquid in which a high qualitative smoking component is dissolved can be obtained.

According to the present invention, the high qualitative smoking liquid is applied to fish, for example, by dipping a skinless cut fillet in the smoking liquid or by dispersing the liquid into fish meat through a blood vessel so that a smoke dried product is produced. As a result, the same effect as that in case of a smoke dry process is exhibited in preservation or the like.

As stated above, according to the present invention, it is possible to perform a smoke dry process which has been conventionally difficult to handle and has a disadvantage in mass production by using a smoking liquid, which is easy to handle and superior in mass production.

In the structures of the cited references in which a smoking material is gasified to obtain bubbles and mixed in a perfusate, and the perfusate is dispersed to a whole body of fish

through fine blood vessel thereof, if the bubbles are larger than a diameter of fine blood vessel, the bubble causes a blockade of the fine blood vessel and the smoking material as well as perfusate cannot pass the vessel. A diameter of the fine blood vessel of fish is 10 μm through which cells contained in blood can barely pass. Therefore, a diameter of bubbles which pass through the fine blood vessel must be less than 10 μm . It is very difficult to produce a number of such fine bubbles precisely. Additionally, if a diameter of even one bubble is larger than 10 μm , it would clog the fine blood vessel so that a smoke dry process cannot be carried out. This method is not practical.

In this respect, according to the present invention, a smoking component is dissolved to produce a smoking liquid containing no bubbles (gas), that is obtained by dissolving a smoking component into a solution. Accordingly, if a smoking liquid is dispersed in fish body as a perfusate through blood vessel, it is possible to prevent the blood vessel from being clogged by bubbles.

It was confirmed that in the case where a smoking liquid containing a small number of bubble is used to perform a perfusion process, the perfusion stops in several to several ten seconds so that a perfusion process cannot be continued. For this reason, in the present invention, a smoking liquid in which a liquid smoking component is dissolved and having no bubble, is used, not a gaseous smoking component. Thus, according to the present invention, the problem of the cited references does not occur.

For at least the above reasons, the present invention is not taught or suggested by the cited references.

In addition, the Examiner asserts that the claims do not require a smoke dry component is dissolved in the smoking liquid.

Applicants respectfully disagree.

Claim 1 recites "bringing...the smoking material into contact or into mixing contact ... with at least one of water, a solution or a solution comprising... to ***dissolve a smoke dry component to form a smoking liquid***". Thus, contrary to the Examiner's position, claim 1 does recite that the smoke dry component is dissolved in the smoking liquid.

The Examiner further asserts that Smits uses a Fessmann smoke generator, which uses steam extraction of smoke components and air may be introduced into the steam to adjust the moisture and flavor of the composition. *See* page 2, column 2, lines 67-72. The Examiner asserts that there is no suggestion that air is required in the smoke generation of Smits.

Fessmann discloses that air or another neutral gas is admixed to vary the moisture content and the flavor of the smoking fluid. In addition, Fessmann teaches that the smoking fluid may have water vaporous, air or another neutral gas admixed thereto before it contacts the food stuffs. Further, Fessmann discloses that admixing water vapour, air or another neutral gas is preferably effected to ensure a particularly good mixing. Although Smits does not expressly "require" the use of air, Smits uses the Fessmann smoke generator. Thus, one of ordinary skill in the art would expect the use of air (or at least there is a strong suggestion that air would be used). In addition, Fessmann teaches away from the non-use of air, particularly since it teaches that the use of air is preferably effected to ensure a particularly good mixing. *See* col. 2, lines 85-89 on page 2.

Furthermore, Fessmann discloses that a smoking material is directly brought into contact with sawdust and heated by using a dried steam as a heating source. Thus, a smoking component is greatly varied depending on a temperature during a chemical reaction with

moisture to be added. Accordingly, the device of Fessmann is not a smoke generating device into which no air is introduced.

For at the above reasons, Smits in view of Fessmann does not teach or suggest using a smoke generating device into which no air is introduced or removing at least one unnecessary substance from the smoking material under a condition where air is interrupted or air is not introduced.

Further, the Examiner asserts that changes in pressure would be expected from the change in temperature conditions used in Smits. *See* col. 3, lines 64-68 and col. 4, lines 1-3.

In the present invention, a reason why a smoking component is brought into contact with a solution in which necessary additives are dissolved at a normal pressure or pressurized condition is to show that it can performed at a normal pressure, but it is also possible to carry out at a pressurized condition for purpose of shortening dissolution time. The cited references do not disclose removing unnecessary substance under condition where air is interrupted and a smoking material is brought into contact with and dissolved into a solution. Thus, in the cited references, the concept of the present invention is not disclosed and one of ordinary skill in the art would not be led to the present invention.

At least for the above reasons, it is respectfully submitted that the present invention according to claims 1 and 2 is not obvious in view of Smits, alone or in combination with Fessmann.

Accordingly, withdrawal of the rejection is respectfully requested.

II. Response to Rejection of Claims 3-17 under 35 U.S.C. § 103(a)

Claims 3-6 and 8-17 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Smits, Fessmann, and further in view of Kenzo (JP 10-179016).

The rejection is respectfully traversed.

It is respectfully submitted that claims 3-6 and 8-17 depend, directly or indirectly, from claim 1, and thus, it is respectfully submitted that these claims are patentable for at least the same reasons as claim 1 and that Kenzo does not make up for the deficiencies of Smits and/or Fessmann.

In addition, the Examiner asserts that smoking foods is a known way to flavor and preserve foods and that it would have been obvious to one of ordinary skill in the art to use the perfusion process of Kenzo to treat whole fish if one of ordinary skill in the art wanted to preserve fish.

As disclosed in the present invention, it is novel to use a smoking liquid, into which a smoking component is dissolved and having no bubbles, to improve food. According to the present invention, as discussed above, it is possible to obtain a smoking material containing a very small amount of oxide, having a weak-scent and a refreshing smell, and stabilizing a coloration of coloring matter of the product, i.e., color does not change for long period of time.

In addition, unnecessary substances are removed from the smoking material under a condition where an air is interrupted or an air is not introduced, so that a high qualitative smoking material containing a small amount of oxidants and from which impurities being removed is available. Thus, according to the present invention, it is possible to obtain a smoking liquid in which a high qualitative smoking component is dissolved. The high qualitative smoking liquid is applied to, for example, fish, and the same effect as that in the case of a smoke dry process is exhibited in preservation or the like. Thus, according to the present invention, it is possible to perform a smoke dry process which has been conventionally difficult

to handle and has a disadvantage in mass production with the smoking liquid which is easy to handle and superior in mass production.

For the above reasons, it is respectfully submitted that claims 3-17 are patentable over the cited art, and withdrawal of the rejection is respectfully requested.

III. Response to Rejection of Claims 8-17 under 35 U.S.C. § 112, first paragraph

Claims 8-17 are still rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement.

The rejection is respectfully traversed for the reasons of record and for the following reasons.

It is respectfully submitted that anti-coagulants that prevent blood from coagulating are well known in the art and one of ordinary skill in the art would recognize that such anti-coagulants could be used in the claimed invention such that one skilled in the art could reasonably conclude that the inventor had possession of the claimed invention.

If there occurs a coagulation of blood and thrombosis during removal of blood, a perfusion would be insufficient to make a discharge of blood remarkably be obstructed. Therefore, it is necessary to suppress an occurrence of thrombosis by preventing blood from coagulating. Accordingly, for the purpose of pulling out blood from meat, an "anti-coagulant" is generally used for preventing blood from coagulating. In this respect, "anti-coagulant" is known in the art.

For example, in the marine product processing industry, citric acid Na for preventing blood from coagulating due to a chelate bond to a calcium ion contained in blood is used as an anti-coagulant adopted in a blood inspection sample.

In the fish processing industry relating to the present invention, there exists a lot of additive permitted to be adopted to blood and having an effect of anti-coagulative of blood, which is used as anti-coagulant. Many antioxidants available in the market are also additives having such effect. As an anti-coagulant to be used in the present invention, for example, a mixed antioxidant consisting of citric acid Na as base material and L-ascorbic acid are used. In that case, an anti-coagulant effect is obtained by citric acid, an antioxidant effect due to a synergy with L-ascorbic acid, and ability of buffering pH.

To support the above position, page 130 extracted from "Fishes Physiology Lecture", vol. 1/ blood and circulation" is submitted herewith. According to the publication, "when a suitable quantity of a potassium oxalate, ammonium oxalate, citric acid soda, or the like is added to blood, it prevents blood from being coagulating. As a result, those are used as a useful anti-coagulant." In addition, pages 487 and 488 of an index of additives to food extracted from "Guide to Examination of Dietary Hygiene" issued by the Japan Dietary Hygiene Association, showing that citric acid Na is an additive to food is submitted herewith. Translations will be provided in due course.

In view of the above, withdrawal of the rejection is respectfully requested.

IV. Conclusion

For the above reasons, reconsideration and allowance of claims 1-6 and 8-17 is respectfully requested.

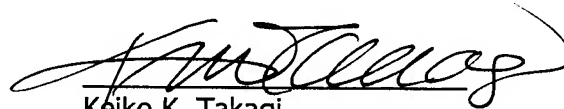
If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
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Respectfully submitted,



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するメカニズムは明かではない。他の2価の陽イオンの中 Sr^{++} には Ca^{++} と同じ作用があるが、 Ba^{++} 、 Mg^{++} ではこの作用は甚だ弱い。プロトロンビンは肝臓で、ビタミンKの協力で造られる。

トロンビンはアルブミン性の蛋白質である。分離、精製して入手することができる。ビタミンKが欠乏するとプロトロンビンの量が減じ、血液凝固時間が延長する。

(c) Ca^{++}

血液に乳酸カリ、乳酸アンモン或はクエン酸ソーダなどを適当量加えると凝固が起らなくなる。それでこれらは有用な凝固防止剤(Anticoaglant)として用いられている。乳酸カリやクエン酸ソーダは Ca^{++} と不溶解性の塩を作って、血液中の Ca^{++} の減少または除去を起こさしめて凝固を防止する。このことから凝固に Ca^{++} が関与していることが想像される。 Ca^{++} は後述するトロンボキナーゼと一緒に作用してプロトロンビンをトロンビンに変えるのであるが、 Ca^{++} が独立して触媒的に働くのか、 Ca^{++} + トロンボキナーゼが酵素的に働くのかは不明である。流血中には血液凝固を起こすのに充分な量の Ca^{++} が存在している。血液凝固に影響するほど Ca^{++} が減少すればこれは強度の血酸症 (Acidosis) であって生存し得ない。それで正常な範囲では Ca^{++} 減少による凝固延長はみられないのであろう。

(d) トロンボキナーゼ

これは哺乳類の血小板、魚類の栓球中に存在している。血液が硝子、木片、皮膚、空気或はリンゲル液のような異物に触れると凝固し始めるのは、栓球がこわれてその内容物が流出することによる。Morawitz はこのような作用をなすものを1つの酵素と考えてトロンボキナーゼ (Thrombokinese) と呼んだ。この意味は栓球の中にあり、トロンビン形成をなす酵素ということである。Howell も同様な考えからトロンボプラスチンと呼んだ。採血の時用いるものにパラフィンなどを塗布しておく、これは異物として作用しないために栓球がこわされず、したがって凝固が起こりにくくなる。なおトロンボキナーゼは脳、肝臓その他の組織液中にも含まれていて脂溶性であり、 Ca^{++} の存在の下でプロトロンビンをトロンビンに変える作用をもっている。ただし血清トリプシンや蛇毒もトロンビン形成をなしうるから、このような物質の本体の解決は容易でない。

(e) その他

凝固促進物質として、血漿中にプロトロンビン促進物質の存在が報告されている。命名も異っておりそれらの異同は不明である。グロブリン性のものであろうと考えられている。この物質はトロンビンの作用によって血清プロトロンビン促進物質に変じ、これがプ

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